

RESUME

ROZINA BINTI ABDUL RANI



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EDUCATIONAL BACKGROUND

- PhD (Electrical & Electronic Engineering)
Title: Anodized Nb₂O₅: Application for gas sensors, lithium-ion batteries and dye sensitized solar cells (DSSCs). RMIT University, Melbourne, Australia.
Aug. 2014
- Master of Science (Research Mode, Electrical & Electronic Engineering)
Title: Design and fabrication of silicon based ISFET as a pH sensor.
Universiti Sains Malaysia, Engineering Campus, Nibong Tebal, Pulau Pinang, Malaysia. Oct. 2007
- Bachelor of Engineering (Honours) Electrical & Electronic Engineering.
Major: Microelectronic
Universiti Sains Malaysia, Perak Branch Campus, Tronoh, Perak, Malaysia. Aug. 2001

WORK EXPERIENCE

- Senior Lecturer
School of Mechanical Engineering, College of Engineering, Universiti Teknologi MARA, Shah Alam.
Nov. 2018 – present
- Post-doctoral
Institute of Science, Universiti Teknologi MARA, Shah Alam.
Nov. 2016 – Oct. 2018
- Part time lecturer (Semiconductor Devices – ELE 541)
Faculty of Electrical Engineering, Universiti Teknologi MARA, Shah Alam.
2 Mac. 2015 – 31 July 2015
- Senior Researcher,
Silicon Sensors, MEMS and NEMS Department, MIMOS Berhad
1 Sept. 2004 – 9 May. 2011

AWARD

- 2 Bronze award IICCE2021 at College of Engineering, UiTM Shah Alam, Selangor
- 1 Gold and 1 silver medal IIDEX 2018 at UiTM Shah Alam, Selangor
- 2 Gold medals, IIDEX 2017 at UiTM Shah Alam, Selangor
- Vice-Chancellor's Doctoral Research Excellence Award 2015 from RMIT University (PhD. Award)
- Endeavour International Postgraduate Research Scholarship (IPRS) from Australian government. (Phd. Scholarship)
- Platinum Badge (MIMOS Berhad – Filed more than 10 IPs)
- MARA Scholarship
- Award: Best oral presentation award, International conference on Nanoscience and Nanotechnology 2017 (NANO-SciTech 2017)

RESEARCH INDEX

1. Total Publication: 78 (Scopus) 92 (Google Scholar)
2. H-index: 19 (Scopus) 20 (Google Scholar)
3. Citation: 1731 (Scopus) 2085 (Google Scholar)

Link:

1. Scopus:

<https://www.scopus.com/authid/detail.uri?origin=AuthorProfile&authorId=55263142400&zone=>

2. Google Scholar:

https://scholar.google.com/citations?hl=en&user=yb5CYQUAAA&view_op=list_works&sortby=pubdate

3. UiTM Expert:

<https://expert.uitm.edu.my/profile.php?id=XHALArXJ8/d55zbocJ+2c/sNTkh3UAELHzXO6H0vISU=>

4. Publon WOS: <https://publons.com/researcher/4274485/rozina-abdul-rani/>

5. Researchgate: <https://www.researchgate.net/profile/Rozina-Abdul-Rani>

GRANT

No.	Research Title and Description	Status/ Duration	Financial Resources
1.	Growth Mechanism of Novel highly Crystalline 3-Dimensional Nanostructured Niobium Oxide- Zinc Oxide with enhanced sensitivity and selectivity of electrical and chemical sensing properties (Coresearcher)	Sep 2017- Aug 2019	Fundamental Research Grant Scheme (FRGS): 600-IRMI/FRGS 5/3 (081/2017) (RM102, 820)
2.	Dual-Synthesized of Niobium Oxide/Zinc Oxide Photocatalytic Nanodevices: Application in Wastewater Treatments. (Coresearcher)	Sep 2017- Aug 2019	BESTARI PERDANA Research Grant (Project code: 600-IRMI/DANA 5/3 BESTARI (P) (101/2018) (RM 25, 000)

3.	Material Propertise and Energy Storage Capacity Enhancement of Nanostructured Tantalum Pentoxide Via Anodization Technique. (Leader)	Sep 2019- Aug 2021	Fundamental Research Grant Scheme (FRGS): 600-IRMI/FRGS 5/3 (389/2019) (RM 84, 200)
4.	Synthesis of Graphene Oxide-based Plasmonic Nanoparticles Embedded Porous Hydrogel Encapsulated Optical Fibre Biosensor. (Coresearcher)	Sep 2019- Aug 2021	Fundamental Research Grant Scheme (FRGS): 600-IRMI/FRGS 5/3 (389/2019) (RM 115, 150.00)
5.	Active Vibration Control of Thin Shell Structures Based on Swarm Intelligence Algorithm. (Coresearcher)	Sep 2019- Aug 2021	Fundamental Research Grant Scheme RACER (FRGS-RACER) 600-IRMI/FRGS-RACER 5/3 (007/2019) (RM 53, 440)
6.	Synthesis of 3D Hydrogel-Graphene Quantum Dots Nanocomposites Modified Fibre Optic Biosensors. (Coresearcher)	Sep 2019- Aug 2021	Fundamental Research Grant Scheme RACER (FRGS-RACER) 600-IRMI/FRGS-RACER 5/3 (011/2019) (RM 51, 200)
7.	Integrated Automation System for the ESSB Production Line in Improving Productivity and Increase Sales Turnover (Coresearcher)	Oct 2020 – Sept 2021	PPRN Grant 100-RMC 5/3/PPRN (001/2020) (RM 85,000)

POSTGRADUATE STUDENT SUPERVISION

Master (Research Mode) :

Main Supervisor:

1. NUR LILI SURAYA BINTI NGADIMAN (2019868464)
2. MUHAMMAD ZUHDI BIN MOHD YUSOFF (2021844974)

Co-Supervisor:

1. MUHAMMAD HAZIQ BIN NOOR AKASHAH (2020674062)

Master (Mixed Mode) :

Main Supervisor:

1. AIDA ZULAIKHA BINTI ABDUL AZIZ (2021536155)

Selected publication:

2021

1. Nur Lili Suraya Ngadiman, **Rozina Abdul Rani***, Siti Rabizah Makhsin, Muhammad Azmi Ayub, Mahzaton Aqma Abu Talip, Ahmad Sabirin Zoofakar, Facile Fabrication Method And Decent Humidity Sensing Of Anodized Ta₂O₅ Nanotubular On Ta Foil Substrate, Journal of Materials Science: Materials in Electronics (2021), Just accepted.
2. SR Makhsin, MIH Mohd Zali, **R Abdul Rani**, NH Saad, MA Ayub, Modifies hummers method of graphene oxide nanostructures for fibre optic sensors application, Scientific Research Journal, 2021, 18 (1), 15-27.
3. Nur Munirah Safiay, **Rozina Abdul Rani**, Najwa Ezira Ahmed Azhar, Zuraida Khusaimi, Fazlena Hamzah, Mohamad Rusop, Influence of Different Annealing Temperatures on the Structural and Optical Properties of TiO₂ Nanoparticles Synthesized via Sol-Gel Method: Potential Application as UV Sensor, Indonesian Journal of Chemistry, 2021, 21(2), pp. 279–285

2020

4. MH Mamat, N Parimon, AS Ismail, IB Shameem Banu, S Sathik Basha, RA Rani, AS Zoofakar, MF Malek, AB Suriani, MK Ahmad, M Rusop, Synthesis, structural and optical properties of mesostructured, X-doped NiO (x= Zn, Sn, Fe) nanoflake network films, Materials Research Bulletin 127, 110860.

2019

5. **R.A. Rani**, A.S. Zoofakar, M.F.M. Ryeeshyam, A.S. Ismail, M.H. Mamat, S. Alrokayan, H. Khan, K. Kalantar-zadeh, M.R. Mahmood, Journal of Electronic Materials, 2019, 48, 3805-3815.
6. N.S. Khairir, R.A. Rani, R.A. Kadir, N. Soin, W.F.H. Abdullah, M.H. Mamat, M. Rusop, A.S. Zoofakar, Journal of Electronic Materials, 2019, 48, 611-620.
7. M.A.A. Talip, N.S. Khairir, R.A. Kadir, M.H. Mamat, R.A. Rani, M.R. Mahmood, A.S. Zoofakar, Journal of Materials Science: Materials in Electronics, 30 (2019) 4953-4966.
8. N.H. Sulimai, R.A. Rani, Z. Khusaimi, S. Abdullah, M.J. Salifairus, S. Alrokayan, H. Khan, P.A. Sermon, M. Rusop, Facile synthesis of CaCO₃ and investigation on structural and optical properties of high purity crystalline calcite, Materials Science and Engineering: B, 2019, 243, 78-85.

2018

9. **Rozina Abdul Rani**, Ahmad Sabirin Zoofakar, Nur Samihah Khairir, Mohamad Hafiz Mamat, Salman Alrokayan, Haseeb A. Khan, and Mohamad Rusop Mahmood, Hydrothermal Synthesis of Nanomoss Nb₂O₅ Films and Their Ultraviolet Photodetection Performance” J Mater Sci: Mater Electron, 2018, Vol. 29, pp. 16765-16774.
10. Nur Samihah Khairir, **Rozina Abdul Rani**, Rosmalini Abd Kadir, Wan Fazlida Hanim Abdullah, Mohamad Hafiz Bin Mamat, M. Rusop, and Ahmad Sabirin Zoofakar, Electrical Behavior of Nanoporous Nb₂O₅/Pt Schottky Diode at Elevated Temperatures, Journal of Electronic Materials, **48**, pp. 611–620 (2019)
11. N.H. Sulimai, **Rozina Abdul Rani**, Z. Khusaimi, S. Abdullah, M.J. Salifairus, Salman Alrokayan, Haseeb Khan, P.A. Sermon, and M. Rusop, Elemental, Particle Size Analysis and Optical Behaviour of Synthesized Calcite Nanoparticles by Precipitation Method, Materials Science and Engineering B, 2019, 243(6), 78-85.

12. A. S. Ismail, M. H. Mamat, M. M. Yusoff, M. F. Malek, A. S. Zoofakar, **R. A. Rani**, A. B. Suriani, A. Mohamed, M. K. Ahmad, and M. Rusop, "Enhanced humidity sensing performance using Sn-Doped ZnO nanorod Array/SnO₂ nanowire heteronetwork fabricated via two-step solution immersion," *Materials Letters*, 2018, vol. 210, pp. 258262.

2015

12. R. Ab Kadir, **R. Abdul Rani**, M. M. Alsaif, J. Z. Ou, W. Wlodarski, A. P. O'Mullane, K. Kalantar-zadeh, "Optical gas sensing properties of nanoporous Nb₂O₅ films", *ACS Applied Materials & Interfaces*, 2015, 7(8), 4751-4758.

2014

13. **R. Abdul Rani**, A. S. Zoofakar, A. P. O'Mullane, M. Austin, K. Kalantar-zadeh, "Thin Films and Nanostructures of Niobium Pentoxide: Fundamental Properties, Synthesis Methods and Applications", *Journal of Materials Chemistry A*, 2014, 2(38), 1568315703.
14. **R. Abdul Rani**, A. S. Zoofakar, J. Subbiah, J. Z. Ou, and K. Kalantar-zadeh, "Highly ordered anodized Nb₂O₅ nanochannels for dye-sensitized solar cells", *Electrochemistry Communications*, 2014, 40, 20-23.
15. R. Ab Kadir, Z. Li, A. Z. Sadek, **R. Abdul Rani**, A. S. Zoofakar, M. R. Field, J. Z. Ou, A. F. Chrimes, K. Kalantar-zadeh, "Electrospun granular hollow SnO₂ nanofibers hydrogen gas sensors operating at low temperatures", *The Journal of Physical Chemistry C*, 2014, 118, 3129-3139.
16. D. D. Yao, **R. A. Rani**, A. P. O'Mullane, K. Kalantar-zadeh, and J. Z. Ou, "High performance electrochromic devices based on anodized nanoporous Nb₂O₅", *The Journal of Physical Chemistry C*, 2014, 118, 476-481.
17. R. Ab Kadir, **R. Abdul Rani**, A. S. Zoofakar, J. Z. Ou, M. Shafei, W. Wlodarski and K. Kalantar-zadeh, "Nb₂O₅ Schottky based ethanol vapour sensors: effect of metallic catalysts", *Sensors and Actuators B-Chemical*, 2014, 202, 74-82.
18. A.S. Zoofakar, **R. A. Rani**, A. J. Morfa, A.P. O'Mullane and K. Kalantar-zadeh, "Copper oxide semiconductors: a perspective on materials, synthesis methods and applications", *Journal of Materials Chemistry C*, 2014, 2, 5247-5270.
19. D. D. Yao, **R. A. Rani**, A. P. O'Mullane, K. Kalantar-zadeh, and J. Z. Ou, "Enhanced coloration efficiency for electrochromic devices based on "anodized Nb₂O₅/electrodeposited MoO₃ binary systems," *The Journal of Physical Chemistry C*, 2014, 118, 10867-10873.

2013

20. **R. A. Rani**, A. S. Zoofakar, J. Z. Ou, R. Ab. Kadir, H. Nili, K. Latham, S. Sriram, M. Bhaskaran, S. Zhuiykov, R. B. Kaner and K. Kalantar-zadeh, "Reduced impurity-driven defect states in anodized nanoporous Nb₂O₅: the possibility of improving performance of photoanodes", *Chemical Communications*, 2013, 49, 6349-6351.
21. **R. A. Rani**, A. S. Zoofakar, J. Z. Ou, M. R. Field, M. Austin and K. Kalantar-zadeh, "Nanoporous Nb₂O₅ hydrogen gas sensor", *Sensors and Actuators B: Chemical*, 2013, 176, 149-156.
21. M. M. Rahman, **R. A. Rani**, A. Z. Sadek, A. S. Zoofakar, M. R. Field, T. Ramireddy, K. Kalantar-zadeh and Y. Chen, "A vein-like nanoporous network of Nb₂O₅ with a higher lithium intercalation discharge cut-off voltage", *Journal of Materials Chemistry A*, 2013, 1, 11019-11025.
22. A. S. Zoofakar, R. Ab Kadir, **R. A. Rani**, S. Balendhran, X. Liu, E. Kats, S. K. Bhargava, M. Bhaskaran, S. Sriram, S. Zhuiykov, A. P. O'Mullane and K. Kalantar-zadeh, "Engineering electrodeposited ZnO films and their memristive switching performance", *Physical Chemistry Chemical Physics*, 2013, 15, 10376-10384.

23. A. S. Zoofakar, M. Z. Ahmad, **R. A. Rani**, J. Z. Ou, S. Balendhran, S. Zhuiykov, K. Latham, W. Wlodarski and K. Kalantar-zadeh, "Nanostructured copper oxides as ethanol vapour sensors", *Sensors and Actuators B: Chemical*, 2013, 185, 620-627.
24. J. Z. Ou, **R. A. Rani**, S. Balendhran, A. S. Zoofakar, M. R. Field, S. Zhuiykov, A. P. O'Mullane and K. Kalantar-zadeh, "Anodic formation of a thick three-dimensional nanoporous WO₃ film and its photocatalytic property", *Electrochemistry Communications*, 2013, 27, 128-132.
25. K. Szpakolski, K. Latham, C. Rix, **R. A. Rani**, and K. Kalantar-zadeh, "Silane: A new linker for chromophores in dye-sensitised solar cells", *Polyhedron*, 2013, 52, 719-732.

2012

26. J. Z. Ou, **R. A. Rani**, M. H. Ham, M. R. Field, Y. Zhang, H. Zheng, P. Reece, S. Zhuiykov, S. Sriram, M. Bhaskaran, R. B. Kaner, K. Kalantar-Zadeh, "Elevated temperature anodized Nb₂O₅: A photoanode material with exceptionally large photoconversion efficiencies", *ACS Nano*, 2012, 6, 4045-4053.
27. A. S. Zoofakar, **R. A. Rani**, A. J. Morfa, S. Balendhran, A. P. O'Mullane, S. Zhuiykov and K. Kalantar-zadeh, "Enhancing the current density of electrodeposited ZnO-Cu₂O solar cells by engineering their heterointerfaces", *Journal of Materials Chemistry*, 2012, 22, 21767-21775.
28. J. Z. Ou, S. Balendhran, M. R. Field, D. G. McCulloch, A. S. Zoofakar, **R. A. Rani**, S. Zhuiykov, A. P. O'Mullane and K. Kalantar-zadeh, "The anodized crystalline WO₃ nanoporous network with enhanced electrochromic properties", *Nanoscale*, 2012, 4, 5980-5988.

2004

29. **Rozina Abdul Rani** and Othman Sidek, "ISFET- pH Sensor for Biomedical Application", AIUB Journal of Science and Engineering (AJSE), Aug. 2004, Vol.1, No.3.

INTELLECTUAL PROPERTY (IP)

IP Filed (WIPO);

1. (WO/2009/066991) A NOVEL APPARATUS AND METHOD FOR MONITORING ENVIRONMENTAL PARAMETERS

Pub. No.: WO/2009/066991 International Application No.: PCT/MY2008/000157

Publication Date: 28.05.2009 International Filing Date: 24.11.2008

Inventors: **ABDUL RANI, Rozina**; (MY), LEE, Hing Wah; (MY), ABD.AZIZ, Aiman Sajidah; (MY), SYONO, Mohd Ismahadi; (MY), ABDULLAH, Ali Zaini; (MY), MAT HUSSIN, Mohd Rofei Bin; (MY).

2. (WO/2009/064166) AN INTEGRATED ION SENSITIVE FIELD EFFECT TRANSISTOR SENSOR

Pub. No.: WO/2009/064166 International Application No.: PCT/MY2008/000140

Publication Date: 22.05.2009 International Filing Date: 14.11.2008

Inventors: **ABDUL RANI, Rozina**; (MY), LEE, Hing Wah; (MY), ABDULLAH, Ali Zaini; (MY), MAT HUSSIN, Mohd Rofei; (MY), ZAKARIA, Azlan; (MY), MOHD ZAIN, Azlina; (MY), MOHAMD BADARUDDIN, Siti Aishah; (MY), NGAH, Nor, Azhadi; (MY).

3. (WO/2009/151309) METHOD AND SYSTEM FOR APPLYING ION-SELECTIVE MEMBRANE ON ISFET SURFACE

Pub. No.: WO/2009/151309 International Application No.: PCT/MY2008/000172
Publication Date: 17.12.2009 International Filing Date: 03.12.2008
Inventors: RASHID, Nora ' zah Abdul; (MY), AZIZ, Aiman Sajidah Abd; (MY), AHMAD, Mohd Rais; (MY), **RANI, Rozina Abdul**; (MY).

4. (WO/2009/045091) A VERTICAL THIN POLYSILICON SUBSTRATE ISFET

Pub. No.: WO/2009/045091 International Application No.: PCT/MY2008/000116
Publication Date: 09.04.2009 International Filing Date: 29.09.2008 Inventors: SYONO, Mohd, Ismahadi; (MY), **ABDUL RANI, Rozina**; (MY).

5. (WO/2009/045092) FULLY INTEGRATED ISFET- VALVELESS MICROPUMP

Pub. No.: WO/2009/045092 International Application No.: PCT/MY2008/000117
Publication Date: 09.04.2009 International Filing Date: 29.09.2008
Inventors: SYONO, Mohd Ismahadi; (MY), **ABDUL RANI, Rozina**; (MY), LEE, Hing Wah; (MY).

6. (WO/2009/157754) ELECTROMAGNETIC INDUCED FIELD EFFECT TRANSISTOR (EMIFET)

Pub. No.: WO/2009/157754 International Application No.: PCT/MY2009/000084
Publication Date: 30.12.2009 International Filing Date: 26.06.2009
Inventors: TAMSIR, Agus, Santoso; (MY), ALIAS, Dzuzlindah, Muhamad; (MY), SULAIMAN, Suraya; (MY), MANUT, Azrif; (MY), ZAKARIA, Azlan; (MY), SYONO, Mohd, Ismahadi; (MY), **RANI, Rozina, Abdul**; (MY).

7. (WO/2009/045090) INTEGRATED THERMALLY COMPENSATED PH EG FET-FLOW RATE SENSOR

Pub. No.: WO/2009/045090 International Application No.: PCT/MY2008/000109
Publication Date: 09.04.2009 International Filing Date: 29.09.2008
Inventors: MOHD Ismahadi bin Syono; (MY), **ROZINA binti Abdul Rani**; (MY), MOHD Rofei Mat Hussin; (MY).

8. (WO2012005566) APPARATUS FOR ISFET GATE CHARACTERIZATION

Pub. No.: WO/2012/005566 International Application No.: PCT/MY2011/000062
Publication Date: 12.01.2012 International Filing Date: 02.06.2011
Inventors: ALI, Zaini Abdullah; (MY), **ROZINA binti Abdul Rani**; (MY), MOHD Ismahadi bin Syono; (MY)

9. (WO2012078025) A METHOD OF FABRICATING A SEMICONDUCTOR DEVICE

Pub. No.: WO/2012/078025 International Application No.: PCT/MY2011/000112

Publication Date: 14.06.2012 International Filing Date: 20.06.2011
Inventors: LEE, Hing, Wah; (MY), DANIEL, Bien, Chia, Sheng; (MY), MOHD, Ismahadi, Syono; (MY),
ROZINA, Binti, Abdul, Rani; (MY)

10. (WO2011040803) A REFERENCE ELECTRODE AND A METHOD THEREOF

Pub. No.: WO/2011/040803 International Application No.: PCT/MY2010/000175

Publication Date: 07.04.2011 International Filing Date: 23.09.2010 Inventors:
SYONO, Mohd, Ismahadi; (MY), **ABDUL RANI, Rozina; (MY)**.

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1. Dye-sensitized Solar Cells based on Anodized Nanochannel Nb₂O₅. (Hak Cipta IPR – MyIPO) (LY2017003041)
2. Enhancing Performance of Electrodeposited ZnO-Cu₂O Heterojunction Solar Cells via Engineering ZnO Seed Films. (Hak Cipta IPR – MyIPO) (LY2017003254)

PROFESSIONAL BODIES

1. Senior Member of Institute of Electrical and Electronics Engineers, IEEE, International. (2006 – present) – Member No: **90360333**
2. Member of Board of Engineer Malaysia. (Date awarded: 26 may 2008). Member No: 55051R.
3. Professional Engineer, Board of Engineer Malaysia. (Date awarded: 24 September 2021).
4. Professional Technologist, Malaysia Board of Technologists (MBOT) – PT18070743 (P.Tech), GT18075990 (Grad.Tech)

REFERENCE

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